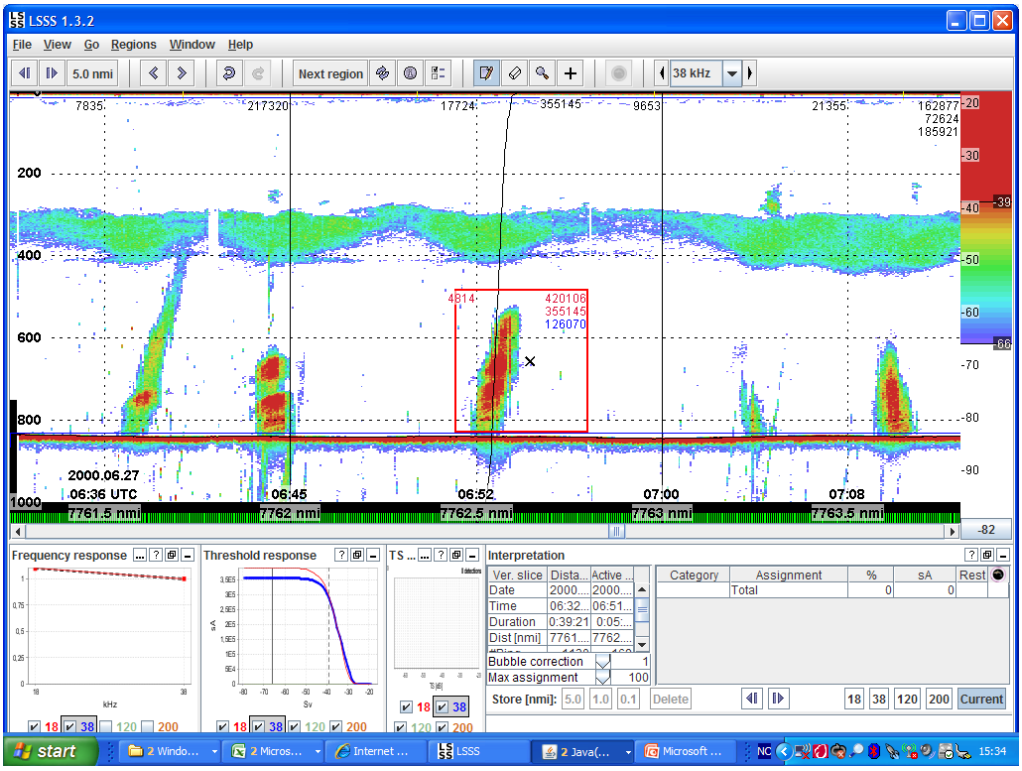
Proposed Cruise Activities – Related to DWH Response and Restoration

- A primary response-related question relates to the existence and flow characteristics of sub-surface oil and dispersants and how such plumes may move related to the surface oil
- Knowledge of the extent and density of subsurface plumes is vital to NOAA's response activities including development of fishery closures, rescue of marine wildlife, and protection of human health
- The research plan being proposed had three main elements (1) use of the NOAA FSV GORDON GUNTER to use its EK-60 sonar to map the three dimensional echo returns of subsurface layers in a pattern that radiates from known areas where sub-surface oil is likely to assess the potential edges of features (see attached graphic showing echograms of a hydrocarbon release imaged with the proposed unit). Validation of oil and gas and dispersants will be through the use of on-board gas chromatography for a rapid evaluation in order to help adapt the sampling plan, followed by voucher Niskin water samples at depth to be processed in approved laboratories. SEFSC's Mocness (multiple opening and closing nets) will be used to sample impacted biological communities discretely (2) Deployment of the contracted R/V WEATHERBIRD II (U South Florida) to do water sampling at depth and deployment of its glider will provide a south to north set of samples, and rapid detection of oil products as part of this sampling should indicate if sub-surface materials have entered the Loop Current in dispersed but detectable quantities, (3) the deployment of the MBARI "Gulper" AUV and USF gliders is proposed to act as a loitering capability (gliders) and for the AUV to provide deep (to 1,500 meter) sampling at discrete depths, investigation and calibration of echo sounder data and fluorometry
- These integrated activities are supported by work teams looking at the integration of technologies including sampling of affected and non-affected biological communities (e.g., through multiple opening and closing nets - MOCNESS) which will provide discrete biological community structure inside and outside affected areas which is critical for damage assessment capabilities
- Total projected costs for these activities for a seven (7) day cruise are (a) GUNTER NOAA costs =$22,700 per day-OMAO, SEFSC, $57,000 (total, supplies, labor), Larry Mayer's acoustic group $25,000, (b) MBARI glider - $9,200 per day, $6,000 for insurance, and $5,000 for shipping, (c) USF WEATHERBIRD and related sampling = $6,500 per day for vessel, USF supplies = $8,200. **Total: $370,000. For a 16 day Cruise, the costs would be $846,000. propose 7 days with the option of going to a second leg to 16 Days**

38 khz echogram over time of experimental plume release conducted by NORWAY in 2000 at >800 meters. The plume is clearly visible rising off the bottom. Images at 18 khz have higher resolution. Both frequencies are available on the GORDON GUNTER

38 kHz, Simrad EK500



18 kHz, Simrad EK500